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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,878	01/17/2002	Shijian Zhou	GP-300898	5565

7590 11/30/2004  
CHRISTOPHER DEVRIES  
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EXAMINER
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NGUYEN, HANH N

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/047,878

Applicant(s)

ZHOU ET AL.

Examiner

Nguyen N Hanh

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Amendments filed on 9/16/04.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 and 14-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-12 and 14-18 have been considered but are moot in view of the new ground(s) of rejection.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "permanent magnets" in claims 4 and 11 must be shown or the feature canceled from the claims. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Kano et al.

Regarding claim 1, Kano et al. show an electric motor comprising: a stator (62 in Fig. 4) for producing a magnetic field; a rotor (74) rotated by said magnetic field; a motor shaft (22) coupled to said rotor; and a first set of passageways (96b in Fig. 4) through said rotor to conduct a nongaseous liquid coolant (engine oil), a passage (96a) in said motor shaft to conduct said nongaseous liquid coolant; and wherein said nongaseous liquid coolant is conducted through said rotor and said motor shaft by centrifugal force generated by the rotation of said electric motor (Col. 1, lines 40-58).

Regarding claim 2, Kano et al. also discloses an electric motor wherein said stator includes current-carrying coils (64) to generate said magnetic field.

Regarding claim 6, Kano et al. also discloses an electric motor wherein said first set of passageways has entrance openings and exit openings, said entrance openings oriented about said motor shaft center line at a first diameter, said exit openings

oriented about said motor shaft center line at a second diameter, and said first diameter being less than said second diameter.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kano et al. in view of Jarczynski.

Regarding claim 3, Kano et al. shows all limitations of the claimed invention except showing the electric motor wherein the rotor is a squirrel cage rotor.

However, Jarczynski discloses the electric motor wherein the rotor is a squirrel cage rotor for the purpose of providing higher power density machinery motor (Col. 4, lines 1-5).

Since Kano et al. and Jarczynski are in the same field of endeavor, the purpose disclosed by Jarczynski would have been recognized in the pertinent art of Kano et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Kano et al. by forming a squirrel cage rotor for the motor as taught by Jarczynski for the purpose of improving the cooling of the motor.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kano et al.

Regarding claims 4, Kano et al. disclose the invention except showing the rotor includes permanent magnet. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make rotor with permanent magnet, since the Examiner takes Official Notice of the equivalence of permanent magnet and electromagnet for their use in the construction of an electric motor and the selection of any of these known equivalents would be within the level of ordinary skill in the Art.

6. Claims 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kano et al. in view of Yamamoto.

Regarding claim 5, Kano et al. shows all limitations of the claimed invention except showing the electric motor wherein the motor shaft includes an interior surface that is cone shaped to conduct a liquid coolant through said interior surface to cool the electric motor.

However, Yamamoto discloses the electric motor wherein said motor shaft includes an interior surface that is cone shaped to conduct a liquid coolant through said interior surface to cool the electric motor for the purpose of improving the cooling of the motor.

Since Kano et al. and Yamamoto are in the same field of endeavor, the purpose disclosed by Yamamoto would have been recognized in the pertinent art of Kano et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Kano et al. by using shaft includes an interior surface that is cone shaped to conduct a liquid coolant through said interior

surface to cool the electric motor as taught by Yamamoto for the purpose of improving the cooling of the motor.

7. Claims 7,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano et al. in view of in view of Grennan et al.

Regarding claim 7, Kano et al. shows all limitations of the claimed invention except showing the electric motor further including a second set of passageways between said rotor and said motor shaft.

However, Grennan et al. disclose the electric motor further including a second set of passageways between said rotor (20 in Fig. 1) and said motor shaft (32 in Fig. 1 and Col. 4, lines 1-35) for the purpose of cooling off the motor.

Since Kano et al. and Greenan et al. are in the same field of endeavor, the purpose disclosed by Grennan et al. would have been recognized in the pertinent art of Kano et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Kano et al. by using a set of passageways between said rotor and said motor shaft as taught by Grennan et al. for the purpose of cooling off the motor.

Regarding claim 8, the structure disclosed Kano et al. modified by Grennan et al. would have second set of passageways have entrance openings and exit openings, said entrance openings oriented about said motor shaft center line at a first diameter, said exit openings oriented about said motor shaft center line at a second diameter, and

said first diameter being less than said second diameter (because of the conical shape of the shaft).

8. Claims 9-12, 14, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto in view of Kano et al.

Regarding claim 9, Yamamoto also discloses an electric motor comprising: a wound stator (10 in Fig. 1), said wound stator conducting current to generate a magnetic field; a rotor (6) rotated by said magnetic field; a motor shaft (7) coupled to said rotor, said motor shaft including a cone-shaped interior surface having an entrance opening (4) and an exit opening (9a and 9b); and a liquid coolant propelled by centrifugal force generated by the rotation of said rotor through said cone-shaped interior surface, said liquid coolant cooling the electric motor (abstract). Yamamoto fails to show a first set of passageways through said rotor to conduct said liquid coolant through said rotor, said nongaseous liquid coolant propelled by centrifugal force through said first set of passageways

However, Kano et al. disclose a first set of passageways (96b in Fig. 4) through said rotor to conduct said liquid coolant (engine oil) through said rotor, said nongaseous liquid coolant propelled by centrifugal force (Col. 1, lines 40-57) through said first set of passageways for the purpose of cooling off the motor.

Since Yamamoto and Kano et al. are in the same field of endeavor, the purpose disclosed by Kano et al. would have been recognized in the pertinent art of Yamamoto.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Yamamoto by a first set of passageways



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through said rotor to conduct said liquid coolant through said rotor, said nongaseous liquid coolant propelled by centrifugal force through said first set of passageways as taught by Kano et al. for the purpose of cooling off the motor.

Regarding claim 10, Yamamoto also discloses an electric motor wherein said rotor is a squirrel cage rotor.

Regarding claim 11, Yamamoto also shows the rotor includes permanent magnets (Fig. 1)

Regarding claim 12, Yamamoto also discloses an electric motor wherein said liquid coolant is oil (abstract).

Regarding claim 14, Kano et al. also discloses an electric motor wherein said first set of passageways has entrance openings and exit openings, said entrance openings oriented about said motor shaft center line at a first diameter, said exit openings oriented about said motor shaft center line at a second diameter, and said first diameter being less than said second diameter.

Regarding claim 17, it is noted that all limitations of the claimed invention have been fulfilled by Yamamoto and Kano et al.

Regarding claim 18, Yamamoto also discloses an electric motor wherein said liquid coolant is oil (abstract).

9. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto in view of Kano et al. and further in view Grennan et al.

Regarding claim 15, Yamamoto and Kano et al. show all limitations of the claimed invention except showing the electric motor further including a second set of passageways between said rotor and said motor shaft.

However, Grennan et al. disclose the electric motor further including a second set of passageways between said rotor (20 in Fig. 1) and said motor shaft (32 in Fig. 1 and Col. 4, lines 1-35) for the purpose of cooling off the motor.

Since Yamamoto, Kano et al. and Greenan et al. are in the same field of endeavor, the purpose disclosed by Grennan et al. would have been recognized in the pertinent art of Yamamoto and Kano et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Yamamoto and Kano et al. by using a set of passageways between said rotor and said motor shaft as taught by Grennan et al. for the purpose of cooling off the motor.

Regarding claim 16, the structure disclosed by Yamamoto and Kano et al, modified by Grennan et al. would have second set of passageways have entrance openings and exit openings, said entrance openings oriented about said motor shaft center line at a first diameter, said exit openings oriented about said motor shaft center line at a second diameter, and said first diameter being less than said second diameter (because of the conical shape of the shaft).

### ***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Information on How to Contact USPTO***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (571) 272-2031. The examiner can normally be reached on Monday through Friday.

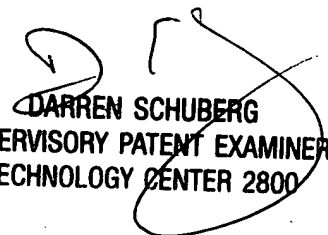
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberger, can be reached on (571) 272-2044. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HNN

November 22, 2004

  
DARREN SCHUBERG  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800